

REMARKS

Claim Rejections – 35 U.S.C. §112

Claims 18-20 were rejected for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Claims 18 and 19 are now amended by deletion of language found indefinite by the Examiner. Withdrawal of the objection is therefore respectfully requested.

Claim Rejections – 35 U.S.C. §102

Claims 1-37 were rejected as being anticipated by Smith, U.S. Patent No. 4,415,390A. The Examiner urged that Smith teaches a machine for reinforcing the internal side of an embedded cylinder pipe with a membrane 64 wherein the machine comprises a contacting member 65 and a separate pressing member 68 as well as a so-called moving member 66 wherein the contacting member 65 and the pressing member 68 angularly shift one from the other. Though the Smith machine is used to apply a membrane 64 in a helical manner on the inside surface of a cylindrical pipe, there is but a single contacting member 65 which acts against the membrane 64. In contrast, the subject matter of the present invention operates in a significantly different manner to solve a problem observed in the field. Specifically, the independent claims 1 and 17 of the application include wording describing a contact area and a main pressure area which is separated from the contact area. That is, the presently claimed invention is directed to a method of reinforcing an embedded cylindrical pipe and a machine suitable for this method wherein one applies a composite structural reinforcement band or membrane within the pipe through in situ stratification of at least one band of reinforcement

fibers and a resin or a resin including matrix wherein the method comprises the following steps and the machine has the corresponding parts or members:

- (a) applying the band onto a contact area on an internal face of the pipe by means of a contacting member;
- (b) moving the contacting member along a helical path so that the contact area follows the path; and
- (c) moving a main pressing member behind the contacting member along substantially the same path to apply pressure to the band in a main pressure area separated from the contact area.

Referring to the drawings, the claimed reinforcing method and machine involve steps and a mechanism regarding two distinct areas. First, a band such as a band 3 in Figure 1 is applied to a contact area (4 in Figure 1) and then pressure is applied to the band 3 in a main pressure area (5 in Figure 1) separated from the contact area. As a consequence, it is possible to carefully control the conditions for application of the band onto the internal face of the pipe. Successive, separate steps of contacting and then pressing the band make it possible to control the stress level in the band during the application process and avoid local detachment or crumpling of the band onto the internal face of the pipe. The application of the band is thus homogeneous along the entire interior surface of the pipe. The band is tightly maintained and affixed to the interior surface of the pipe thereby enabling the repaired pipe to carry radial stress.

With respect to the machine, the contact member 40 is capable of applying the band onto a contact area (4) and a pressing member 50 is capable of applying pressure to the band in a main pressure area (5) separated from the contact area (4).

The referenced Smith '390 patent is significantly different in its methodology and the construction of the machine associated with the methodology. Smith discloses a machine for internal wrapping of the surface of a conduit, cylinder or pipeline with a membrane 64 which is adhered to the interior surface. The membrane is taken from a roll 63 and pressed along the interior surface by means of a pressure roll 65. Smith does not disclose the following: A contacting member capable of applying the band or a membrane onto a contact area and a separate pressing member capable of applying pressure to the band in a main pressure area separated from the contact area. The membrane 64 of Smith contacts the internal surface of the cylindrical pipe in the same area where it is pressed by the pressure roll 65 which acts as both a contacting member and a pressing member.

The Examiner asserted that the pressure rolls 65 of Smith is a contacting member. The Examiner further asserted that the spring 68 is a pressing member. The Examiner further asserted that the arm 66 is a moving member. However, it is clear that the spring 68 is not a pressing member for applying pressure to the band in a main pressure area separated from the contact area. Rather, the spring 68 is suitable only to bias or move the arm 66 so as to enable the pressure roll 65 to apply pressure to a membrane 64 against a single contacting area which is also the so-called pressure area. The arm 66 is not a moving member capable of moving both a contacting member and a pressing member against a membrane 64 along a helical path because

the arm 66 does not move a pressing member and does not move any component along a helical path. It is merely biased by a spring 68 to insure that the contacting member 65 of Smith remains positioned against the membrane 64. As a consequence, it is clear that the claimed subject matter set forth in the unamended and amended claims is neither anticipated nor obvious in view of the cited prior art. The subject matter of the claimed invention solves a problem not considered or addressed by the claimed invention as set forth in the claims presently presented. The advantages of the present invention are discussed at paragraphs 14 and 18 of the application.

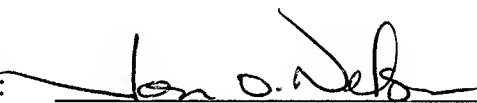
Therefore, in view of the foregoing amendments and remarks, it is believed that the claims in their amended condition are allowable. Reconsideration thereof and passage to allowance is earnestly solicited.

Respectfully submitted,

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